

Ludlow

SUPERSURFACER INSTRUCTIONS



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INSTRUCTIONS

Description

The Ludlow Supersurfacers is a single purpose machine designed to take a very light surface cut from the face of type slugs of any cross-section up to and including 72 point body size and as long as a 42 pica length of measure.

Dimensions . . . The base of the pedestal of the SUPERSURFACER measures 16" x 16". The overall dimensions are 24" x 19". The height of a slug carriage from the floor is 38", the overall height, including the slug tray rack, is 49". Crated for domestic shipment, the gross weight is 350 lbs. (for export — 404 lbs.); the net weight is 225 lbs. The crate dimensions are 25" x 25" x 49".

Power . . . The one-quarter horsepower motor is mounted below the table and through the aid of an endless "V" belt drives the cutter spindle at a speed of 4200 rpm.

Cutter . . . The cutter is equipped with inserted blades ground on both ends, thereby permitting reversal of the cutter when one side becomes dull.

Two cutters are supplied with each SUPERSURFACER, one of which is mounted on the machine at time of shipment, and one especially boxed extra cutter. The special box is to be used when a dull cutter is returned to the Ludlow Company for re-sharpening.

Cutter Adjustment . . . On the left side of the machine is a micrometer device for regulating the depth of the surface cut to a fraction of a thousandth-of-an-inch.

Spindle Bearings . . . The spindle revolves on grease-sealed type bearings and no further lubrication is necessary. The spindle is also capable of with-

standing heavy end and radial loads; is springloaded endwise, thus all end play is eliminated.

Slug Carriage . . . The slug to be surfaced is placed in the slug holder and clamped on its side. The seat upon which the slug rests is grooved to serve as a scraper so that chips of metal adhering to the slug seat will be brushed aside when the slug is moved back and forth on the seat prior to clamping the slug in position. The slug is held in position on the slug holder under spring pressure clamping action. The carriage on which the slug holder is mounted travels on rigid rod ways and is provided with adjustments for wear. After the carriage has been moved the entire length of its travel and the return stroke started it is automatically raised so the cutter will not contact the face of the slug on the return stroke of the carriage. At the end of the return stroke the carriage automatically drops to normal position on the left slide rod way. Wiper collars on the left slide rod way travel with the carriage and keep the left way clean, thus insuring perfect contact of the slug carriage with the left slide rod way.

Slug Face Lubrication . . . Before the face of the slug contacts the cutter it is automatically lubricated by an oiled felt roller. The oil deposited on the face of the slug prior to surfacing prevents type metal from adhering to the cutting edges of the cutter blades during the surfacing operation thereby preventing a scored face on the slug.

Chip Pan . . . The slug shavings drop into a removable chip pan located below the cutter.

Slug Tray Rack . . . The SUPERSURFACER is equipped with a slug tray rack for holding either half or full-size slug trays. When two half-size trays are used, spring pins support the top tray allowing either tray to be removed or replaced without interference. When a full-size slug tray is used, the weight of the tray depresses these two pins. The slug tray rack is placed at an angle so slugs can be removed easily from the tray and replaced after surfacing. The slug tray rack is cut out at the sides and bottom so slug trays may be placed in position or removed handily.

Installation

Unpacking . . . The SUPERSURFACER is thoroughly tested before leaving the factory. Care should be taken that no adjustments are moved when the machine is unpacked.

To unpack:

1. Remove the crating lumber from the base upon which the Surfacers is bolted.
2. Remove the wooden box which contains the oil and special cutter box containing extra cutter — which is strapped to the base of the crate.
3. Remove the slug tray rack, which is strapped to the base.
4. Remove the machine from the skid.
5. Remove all slushing grease from the polished parts using either

naphtha or gasoline. Extra care must be taken when removing grease from the cutters which have been carefully ground and any undue rubbing action on the cutting edge of the blades with a brush or rag will destroy their keen cutting edges.

Assembling . . . The SUPERSURFACER is shipped completely assembled with the exception of the slug tray rack which should be mounted on the top of the table with the two cap screws located in the tapped holes on top of the machine.

Locating . . . It is desirable to leave a space of about 18" at the back of the machine to allow for cleaning and oiling. At least 2 feet should be allowed at both sides of the machine to provide room for adjusting, changing cutters, etc. The operator will require at least a 2½ foot space at the front of the machine.

Electrical Connections . . . Before making any electrical connections, the name plate specifications on the motor should be carefully checked with the existing current. If the motor is to operate from the lighting circuit the cord and plug may be used for the electrical connection. If the motor is to operate from the power circuit an electrician should make permanent connections.

Check Motor Rotation . . . After the electrical connections are made the motor rotation should be checked as it is very important that the rotation of the cutter be counter clockwise when facing the cutter. The cutter must cut downward as the work passes by it. The direction of rotation of the cutter is also indicated by an arrow on the belt guard.

Check Position of Cutter . . . In packing, shipping and unpacking, the spindle head may become unlocked and the micrometer adjustment turned, therefore before attempting to surface slugs the position of the cutter should be checked (see adjustments on page 5 "Position of Cutter").

Operation

Caution . . . DO NOT SURFACE SLUGS THAT HAVE BEEN BURNISHED. THIS IS OF VITAL IMPORTANCE TO THE LIFE OF THE CUTTER. A slug burnished with abrasive paper contains partially imbedded particles of emery which will almost instantly destroy the cutting edges of a surfacing machine cutter. A caution plate is affixed to the front of the SUPERSURFACER housing warning the operator of this danger. Also type metal which contains particles of copper or other hard metals will destroy the cutting edges of the cutter.

Slugs to be Surfaced . . . We do not recommend the surfacing of slugs below 24 point, especially those of light faces.

Method of Operation:

1. Turn on motor switch.
2. With the carriage in the forward position (nearest the operator), depress the handle to open the clamp and place the slug to be surfaced in the slug holder against the stop rail at the rear of the clamp jaw.

The grooves in the face of the bottom jaw and the stop rail will clean the bottom and side of the slug when it is placed in the slug holder and rubbed back and forth prior to clamping. Slugs with a smooth and a ribbed side on the body should be placed with the smooth side down so as to have the clamp exert the most holding power.

3. Depress, then release the pressure on the handle to clamp the slug in the holder.
4. Pressing very lightly in a downward direction against the left slide rod push the slug carriage with slug clamped in position, across the cutter to the end of its travel taking a full two seconds for the carriage to travel from the front to the rear of the machine.
5. Return the carriage to starting position.
6. Depress the handle and remove the slug.

Care

Lubrication . . . The following parts should be lubricated with the light grade machine oil (Symbol A6169) furnished with the SUPERSURFACER.

1. Motor bearings — once a month.
2. Guide rod ways — daily.

The felt roller should be kept lightly oiled by adding oil in the oil cups at the top of the roller. Approximately one-half teaspoon of kerosene or very light oil should be added twice a day during normal operation of the SUPERSURFACER.

The spindle revolves on grease sealed ball bearings which do not require further lubrication.

Cleaning . . . A brush is attached to the SUPERSURFACER for removing the chips of metal from the seat of the slug holder. Do not use this brush on the guide rods as the brush should be kept dry.

The Cutters . . . When not in use, the cutters should be kept well oiled to prevent rusting. Particular care must be taken not to damage or move the blades of the cutter. The dislocation of one blade will destroy the quality of finish on the slug face.

Adjustments

The Cutter . . . As the cutter can only be sharpened by grinding with a special fixture do not attempt to sharpen it with an oil stone or an emery wheel. A dull cutter should be returned to the Ludlow Company for re-sharpening in the special box supplied for that purpose.

To change the cutter:

1. Loosen the socket lock screw in the micrometer thimble with the special wrench.
2. Remove the projecting stop pin from the micrometer thimble.

3. Loosen the lock screw on the front of the spindle housing.
4. Loosen the two screws holding cutter guard and remove guard in vertical direction.
5. Screw spindle to the left, away from the carriage. Remove the cutter by removing the three socket screws using the special wrench provided for this purpose.
6. See that the cutter seat and the end of the spindle are clean when reversing or changing the cutter. This is of *greatest importance* as they must be clean and *absolutely free* from particles of lead, dust or any foreign matter. If they are not, the result will be a cutter which will give the same results as one having high blades forced to perform all the cutting instead of distributing the cutting over all the blades. In other words, the cutter will not run true.
7. Place cutter in position and revolve against spindle end so the grooves in the end of the spindle will help clean the cutter seat.
8. Replace the three socket screws and alternately tighten a fraction of a turn to insure even seating of the cutter.
9. Replace cutter guard. Whenever the cutter is changed it is necessary to position the cutter for surfacing the slugs to proper height and then readjust the micrometer thimble so that the graduation on thimble will correspond to the height of slug.

Position of Cutter:

1. (a) Loosen socket lock screw in micrometer thimble with the special wrench.
(b) Loosen lock screw on the front of spindle housing.
(c) Remove projecting stop pin from micrometer thimble.
2. Move the spindle housing to the extreme left. Remove chip pan.
3. Place a typeface slug in the holder and move carriage back until the slug is opposite but not touching the cutter.
4. Start the motor.
5. Advance the spindle head and cutter toward the slug until the revolving cutter just touches the face of the slug.
6. Lock spindle housing with lock screw. Push the carriage with the slug clamped in place across the cutter to the end of the travel and return it to starting position. Repeat operation to insure surfacing the entire face of the slug.
7. Using a micrometer gauge, measure the slug height at the ends of the slug over the surfaced part of the face, and set the micrometer thimble on machine to this measurement. Set the cutter to trim the desired height (.916", .917"). Replace the stop screw in the micrometer thimble. Set and lock the graduated thimble on the micrometer screw to register with this measurement.

Readings on the micrometer thimble must be taken only when the screw is turned clockwise to eliminate all end play in the adjusting screw. Adjustment for this end play is explained below.

8. Replace chip pan.

9. Adjust slug face lubricator as explained below.

Slug Carriage . . . The carriage ways pivot on the right-hand guide rod and are slotted. Compensation for wear or looseness is regulated by two socket screws in the bottom of the carriage at these slotted sections. These members of the carriage should be adjusted so there is no looseness of these bearings on the right-hand guide rod, or inaccuracy of type height will develop. However, the carriage should operate smoothly and must not travel hesitantly when it moves past the cutter.

Parallel Cuts . . . The slug holder against which the slug seats determines the parallelism of the surfaced face to the foot of the slug. Measuring the ends of the slug with a micrometer gauge will determine if the surfaced face is parallel to the bottom. Adjusting screws are provided for repositioning the slug rest if and when required.

Squareness . . . The squareness of the trimmed surface to the slug holder is controlled by the two tapered parallel blocks under the carriage which slide on the left-hand slide rod. By closing these blocks together the thickness is increased and the carriage seat is raised; by spreading them out the thickness is reduced lowering the carriage seat. Remove the right-hand guide rod held in place by two set screws. Remove the carriage assembly. Then release the four screws holding these parallel blocks in position and change position as indicated by lines on the front of the blocks. Trim two pieces of 36-pt. underpinning and test for squareness by laying the two pieces on same side which rested on the carriage block on a flat surface with trimmed surfaces against each other and sight for light opening.

The left-hand slide rod is retained by two set screws. As this slide rod becomes worn, it should be turned to one of the eight locations marked on the end of the table around the slide rod hole. When all eight positions have been used, the rod should be turned end for end, and a corresponding number of new wearing surfaces will be available, making a total of sixteen wearing surfaces on this slide rod. This will give many years of service before it needs replacement.

Slug Face Lubricator . . . The adjustable bracket which supports the revolving felt oiler must be adjusted so the felt just touches the face of the slug before it reaches the cutter but it must not touch the slug on the return stroke of the carriage. The slotted set screw and lock nut provide for this adjustment.

Micrometer Screw . . . Adjustment to reduce the play in the micrometer screw is provided in the dovetail member which guides the spindle housing, in the following order:

1. Remove micrometer thimble stop pin.
2. Loosen socket set screw on micrometer thimble.

3. Loosen lock screw on front of spindle housing.
4. Remove three screws holding belt guard and remove guard and belt.
5. Remove chip pan.
6. Loosen two screws and remove cutter guard and oiler, in vertical direction.
7. Loosen three small screws on the bottom and front of the spindle housing in line with the lock screw.
8. Disengage micrometer screw and remove spindle housing.
9. Tighten screw in dovetail next to the micrometer screw hole a very small amount.
10. Replace spindle housing and test tightness of micrometer screw.
11. When micrometer screw is practically free from lost motion, replace all parts in reverse order adjusting the three small gib screws thus regulating the position of the gib to eliminate any side play of the spindle housing on the dovetail guide.



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